

Notice of Allowability

Application No.

10/666,663

Examiner

Ling-Siu Choi

Applicant(s)

STRUTHERS ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/14/2004.
2. ☒ The allowed claim(s) is/are 48-58.
3. ☒ The drawings filed on 18 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This Office Action is in response to the Amendment filed December 14, 2004.
Claims 1-30 were canceled and claims 31-58 are now pending.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CAR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Tom Chen on January 13, 2005.

3. The application has been amended as follows:
Cancel claims 31-47.

Allowable Subject Matter

4. Claims 48-58 are allowed.
5. The following is an examiner's statement of reasons for allowance:
The present claims are allowable over the closest references: Struthers (US

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5,366,828).

The present relates to a **method** for forming a nanostructure laded reticulate structure for sorption and desorption of molecular gas, the method comprising

A	polymerizing one or more precursor mixtures to form an aerogel
B	supercritically drying the aerogel to remove the liquid components and form a monolith aerogel
C	curing the monolith aerogel disposed and sealed into a mold
D	placing the monolith aerogel in a reducing atmosphere and at elevated temperature to carbonize the monolith aerogel
D	depositing and bonding a catalyst to sites available on the carbonized aerogel to form catalyst islands
E	growing crystalline graphite precursors from the catalyst islands

(summary of claim 48)

Struthers discloses a negative anode electrode includes **microporous carbon aerogel structures** of randomly disposed **interengaged carbon fiber** in three-dimensional reticulate form and a **hydrogen absorbing metal alloy structure** throughout and conforming generally to and carried by the micro-porous carbon aerogel, wherein the hydrogen-absorbing metal includes nitrate of chromium, copper, iron, and nickel and the aerogel is obtained by the steps comprising (a) mixing resorcinol, formaldehyde, alcohol, and water in the presence of a base to form an organic sol; (b) gelling the sol by adding a salt such as sodium carbonate, sodium sulfate, potassium chloride, or ammonium nitrate; (c) adding metal nitrate to the alcogel ; (d) exchanging

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the solution of alcohol and water within the pores of the organic alcogel; (e) supercritical drying the alcogel to form a metal-laded organic aerogel ; and (f) carbonizing the resulting aerogel (abstract; col. 5, lines 24-29 and 50-60; col. 6, lines 15-61). Struthers further disclose that "the metal is established of submicron sizes of metal particles fused together to establish a reticulate disordered multi-component metal alloy structure substantially conforming to the carbon aerogel by subjecting the metal-laded aerogel to temperature in excess of 600 degrees C" (claim 5). However, Struthers do not teach or fairly suggest a method to form a nanostructure laded reticulate structure comprising a step of growing **graphite nano-filaments** on the reticulate catalyzed carbon aerogel monolith structures.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

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L. S. Choi

**LING-SUI CHOI
PRIMARY EXAMINER**

January 21, 2005